

# **AGENDA**

## **SMTF Collaboration Meeting at Fermilab October 5,6,7, 2005**

Dear SMTF Colleagues,

This is an agenda update and reminder that we will have a SMTF Collaboration Meeting at Fermilab October 5,6,7 (Wednesday, Thursday, Friday). The latest agenda below provides more detail on the strategy for the working group discussions. We are pleased to have both Barry Barish and Gerry Dugan attend for the first day and some fraction of day two if possible, and participate in some of the working group discussions Wednesday afternoon. Pier Oddone will discuss the Fermilab view of the SMTF program. The new record gradients being achieved at KEK (Cornell cavity) and JLAB in single-cells will make this meeting interesting and should help us work hard to achieve the next steps in reliability.

KEK, DESY, INFN, and UK, are attending the meeting and KEK, INFN and DESY will also contribute by video.

An agenda is also included for the Technical Board Meeting

Thanks to everyone who helped with the agenda, especially  
Dieter Proch, Nobu Toger, John Corlett, and Shekhar Mishra.

Regards,

Helen, Hasan, and Nigel

October 5th Wednesday

Plenary Session: Location Wilson Hall 1 West.

8:45 Opening of Meeting, Agenda, and Logistics: Helen Edwards & Nigel Lockyer

9:00 View of SMTF by Fermilab-Pier Oddone (15+10)

9:25 ILC at Fermilab Shekhar Mishra (25+10)

10:00 Proton Driver R&D Bill Foster (15+10) minutes

10:30 Status of CW and Plans John Corlett or Kwang-Je Kim (10+10)

Coffee: 30 minutes

11:20 Discussion and Charge to Working Groups - Hasan Padamsee

12:00 Working Lunch and meet through afternoon.

Oct 6 all day Working Groups meet

Oct 6: 12 - 2 Technical board meets over long lunch.

Oct 6: Collaboration board meets 5-6 pm (Pier Oddone will attend)

Oct 7 am: Working Groups meet. Location for WG2 changes to Feynman FCC 2A. Write Summaries

4:00 Final summaries of Working Groups, Technical Advisory Board and Collaboration boards:  
Discussion all. Pier Oddone will attend. Location: Racetrack WH 7XO

5:30 Close:

## DETAILS BELOW

Wednesday 12:30 Four Working Groups Meet:

### SMTF WG1 on Cavities: Challenges in making reproducible cavity performance

Location: Black Hole, WH 2NW

The main themes are: How do we achieve reproducibility at 35 MV/m  $Q=10^{10}$ ? What are the known problems of the existing methods? What studies are underway and are still needed to get better results? What are the latest results on single and multi-cell cavities?

Taking into consideration the discussions at Snowmass and the high level of activity detailed in the posters presented at SRF2005, we plan to continue these discussions in the working group. Our goal is for the suggested leaders to put together a document that outlines the best procedures that are followed, and how to avoid pitfalls.

We have organized the Cavity discussions around 3 main topics. Our initial plan calls for 4 plus hours for each topic. It may well turn out that each topic takes longer than 4 hours, so our plan is to continue discuss each topic in the order below, until it is exhausted, or to move among the first topics to accommodate the time differences between US, Europe and Japan.

If we run out of time, and cannot cover all 3 topics, we can try to continue these discussions at a future collaboration meeting.

Speakers should talk about the detail experiences, both positive and negative, as well as summarize what is important to follow to get good, reproducible results, and what studies are underway. Talks should avoid plans for future facilities.

We will start with the first topic, EP, and continue as long as needed.

### \*Topic 1 Mastering EP (4 plus hours total)

Suggested Leader(Tajima Tsuyoshi Los Alamos, Christian Boffo- Fermilab) Group leaders should plan to produce a report distilling what is agreed upon, what are the pitfalls, and unknowns.

2 hours of talks plus questions

Updates on EP studies at DESY, CARE, KEK, Argonne, JLab, Cornell... (for example see SRF posters. ThP01 - 08)

Video : DESY Group: Axel Matheisen (video)

Highlights from CARE activities: Dieter Proch (video)

Update Hankel Chemical Company (single cell Niobium EP polishing)(DESY)

KEK (Takayuki Saeki)

Jlab (John Mammosser)

Fnal/Argonne Mike Kelley (Recipes for EP at ANL)

Cornell (Vertical EP, Hasan Padamsee)

Discussion (2 hour)

What studies are needed to get better results for EP Integrate Lutz's compilation from snowmass WG5.  
Any remaining issues with BCP? (discussion)

### \*Topic 2 (4 plus hours)

Update on clean room, clean water, and HPR studies (e.g. ThP10, ThP13,ThP14)

Suggested Leader(John Mammosser,JLAB, Alan Rowe Fermilab)

Group leaders should plan on producing a report distilling what is agreed upon, what are the pitfalls, and unknowns.

2 hour talks plus questions

Updates about new information on clean room and HPR

CARE Dieter Proch

DESY Detlef Reschke

Jlab John Mammosser, Peter Kneisel (HPR, nozzles etc)

KEK (by Video?)

Discussion (2 hour)

What studies are needed to get better results for cleanliness against field emission Start with Lutz's compilation from Snowmass WG5

### \*Topic 3 ( 4 plus hours)

Update on materials evaluation (large quantities) and latest cavity results (e.g. Posters TuP48, 49)

Suggested Leaders (Pierre Bauer/ Christian Boffo, Peter Kneisel)

Distilled report from Leaders.

2 hours of talks

Standard specs for ordering material (DESY specs handout)

Eddy current scanning at FNAL (Singer(video) ,Boffo), rrr measurements at final (Boffo)

Squid based scanning at DESY (Singer (video))

DC flux penetration studies (Wisconsin)

Proposal for needed future materials R&D (Bauer)

Large grain and single grain cavity results (Kneisel)

Large grain and single grain cavity results (Singer)

Latest results on single cell cavities with reduced surface fields.

(KEK Person, P. Kneisel, DESY)

Latest results on multi-cell cavities with reduced surface fields.

(KEK Person, P. Kneisel, DESY)

Discussion (2 hour)

Do we need to update the specs, do we have a standard ILC spec? What studies are needed for routine materials evaluation? Discussion of collaborative material R&D proposal.

What should be relative emphasis for poly-crystalline material vs single crystal material (or large grain material) for future 9-cell construction

### SMTF Working Group 2 On Cryomodules:

ILC Cryomodule design, prototype and system tests

Location: Hermitage Industrial Building Center (IB Center) East Door  
second floor (across from CDF). Friday meet in Feynmann FCC 2A

The main themes of this group are:

- 1)What are the necessary features that should be present in an ILC cryomodule)?
- 2)What are the advantages of these new design features?
- 3) Estimate the timeline for a path from design to engineering to prototype to system test?

## \*Topic 1 ILC Cryomodule Design

Suggested Leader(John Weisend, Norihito Ohuchi)

Talk by Carlo Pagani (video):

Two presentations at Snowmass in WG1 and on plenary on Aug 25 am on next generation cryomodule.  
(may have to be on video)

Helen Edwards: Thoughts on ILC Cryomodule Generation IV

Discussion

List new features and advantages of new features. What engineering is necessary, such as new stress calculations, new heat load assessments, alignment shifts, tuner considerations.

Who will do the engineering? Instrumentation package, diagnostics to evaluate changes for gen IV  
Facilities and tooling necessary for IV

## \* Topic 2 : ILC cryomodule cost reduction Suggested Leaders(Harry Carter, Rolf Lange)

Talk: Rolf Lange DESY (talk on cost reduction) See Proch's snowmass talk on cryomodule cost and studies to reduce costs for XFEL.

Discussion:

Further ideas on how to simplify assembly and alignment and other aspects to reduce cryomodule costs.

## \* Topic 3 : Timeline for ILC cryomodule realization

Suggested Leader(Pierini-INFN, Tom Peterson Fermilab)

Speakers: Timeline for ILC cryomodule realization: Tug Arkan, Don Mitchel

Discussion.

Timelines for generation IV ILC cryomodule

## WG3 CW plans and Beam Tests for Modules

Location: Meet Industrial Building 2 IB2 Meeting Room (small)

### \*Topic 1: Preparations for beam tests (Thursday AM)

Suggested Leaders (John Corlett, Sergei Nagaitsev(tentative))

Written summary of conclusions needed for beam section.

\* Need for beam tests for various modules

Talk by DESY person at TTF2 (Hans Weise on Video(tentative))

Talk Helen Edwards Introduction of Beam Requirements at SMTF

Talk by KEK person on STF beam tests

What is the status/plans of the injector for the beam tests at SMTF?

Philippe Piot

How do we need to prepare the injector and diagnostics for the beam test of the CM? (John Corlett)

Discussion: Why we need beam tests, and how A0, STF and TTF-II are essential.

What are the tests? Is A0 evolving to the right instrument?

## \*Topic 2 CW applications

Location:

Suggested Leaders (John Corlett, Kwang-je Kim)

Thursday afternoon:

Crab cavities session:

(KEK person) - crab cavities development at KEK

John Corlett (LBNL) - crab cavity design studies at LBNL

Tim Koeth (FNAL/Rutgers) - deflecting cavity development at FNAL

Geoff Waldschmidt (ANL) - crab cavity design studies at ANL

High-Q CW accelerating structure & cryomodule session:

Hasan Padamsee (Cornell) - high-Q developments worldwide

Claus Rode (J-Lab) - cryomodule developments for CW operations

M. Dykes (CCLRC Daresbury) plans for cw scrf at Daresbury

Group discussion on strategies - synergies between ILC, LHC, light sources, diagnostics applications ...

Group discussion and development of proposal to BES

Crab cavity specs for storage ring applications

Cryomodule specs

Friday morning:

Continue discussions

Drafting proposal to BES

## WG4 Proton Driver

Suggested Leaders (Bill Foster, Ken Shephard)

Plans being worked on.



## Technical Board Agenda

Chair: Hasan Padamsee

Lunch Thursday..12:00 1:30 pm

Location: TBD.

## Agenda

### Topic 1:

Will single and large grain materials provide large cost reduction for example by eliminating the need for ep or HT bake?

How aggressively should the ILC community pursue cavity cost reduction approaches such as hydro-forming/ spinning, Nb/Cu bonding, in order to eliminate e-beam welding. How aggressively should the superstructure be pursued?(superconducting joint)

### Topic 2:

Can a single crystal ingot be bought?

Does it make sense for the world cavity community purchase a single crystal ingot (roughly 4000 lbs = 50 cavities) to divide amongst three regions? (\$1M)

### Topic 3:

How do we integrate this meeting with the upcoming TTC meeting in Frascati in December?

